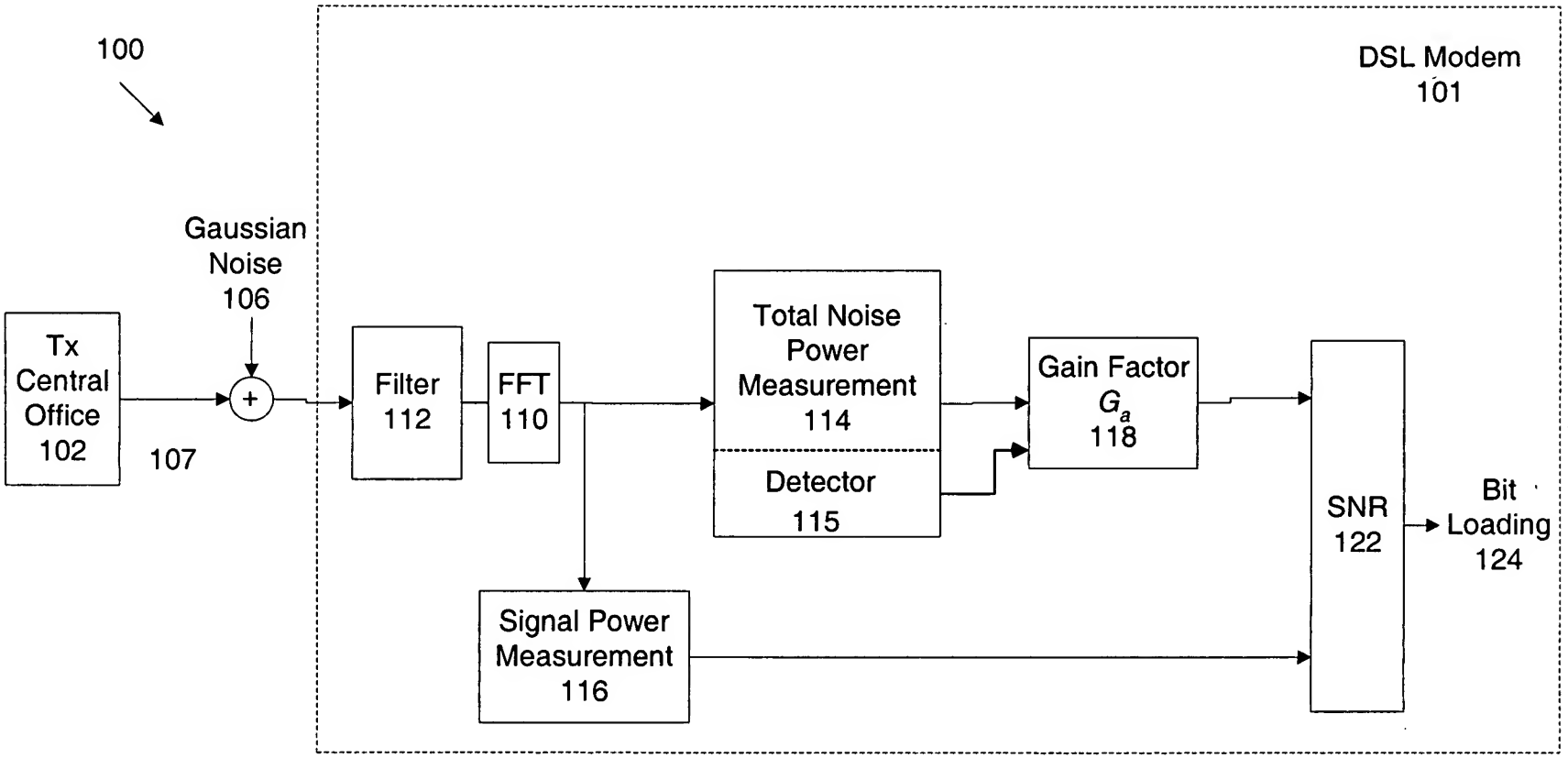
100
DSL Modem
101
Gaussian
Noise
106
Tx
Central
Office
102
107
+
Filter
112
FFT
110
Total Noise
Power
Measurement
114
Detector
115
Gain Factor
G_a
118
SNR
122
Bit
Loading
124
Signal Power
Measurement
116

FIG. 1

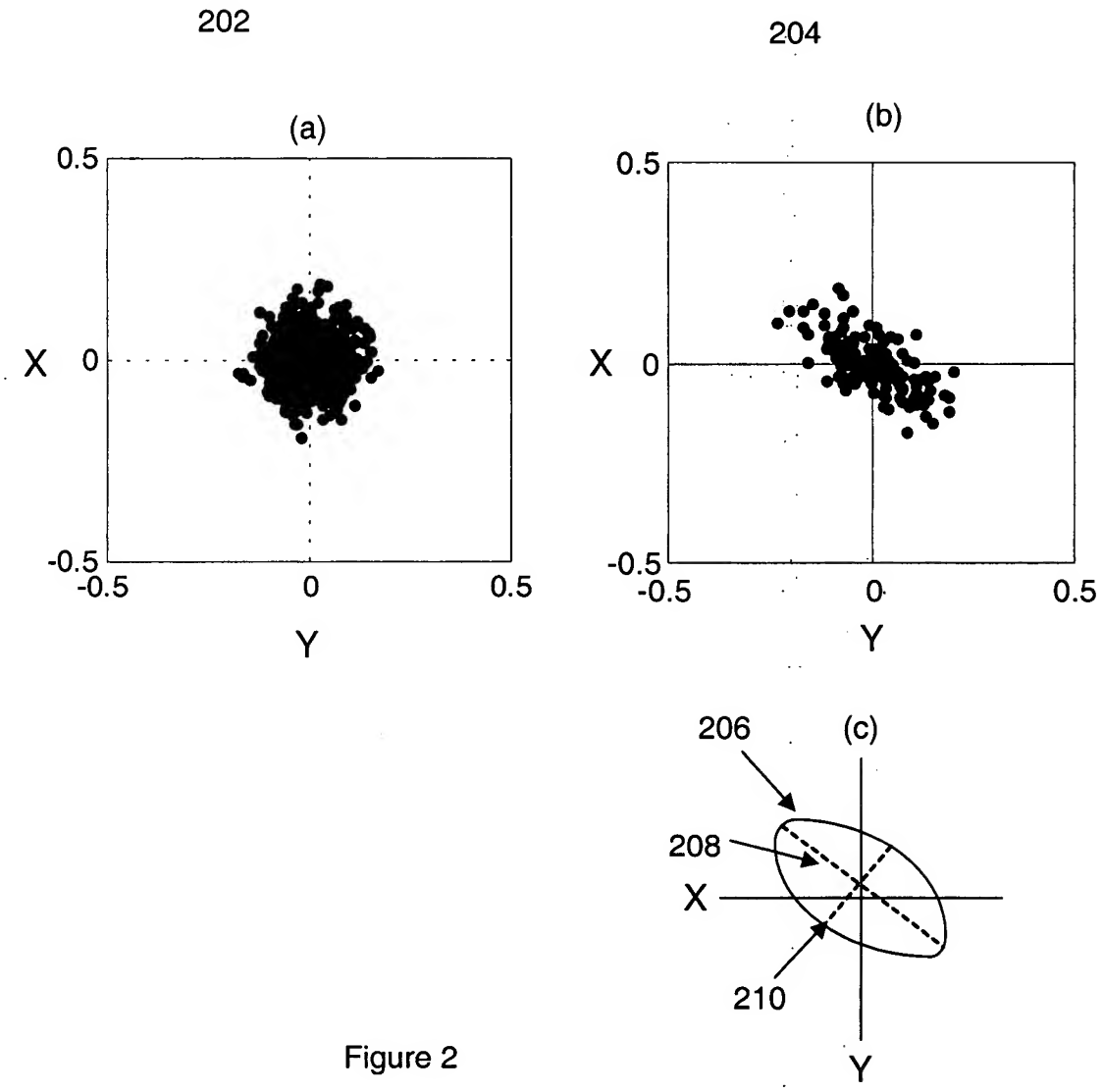

Figure 2

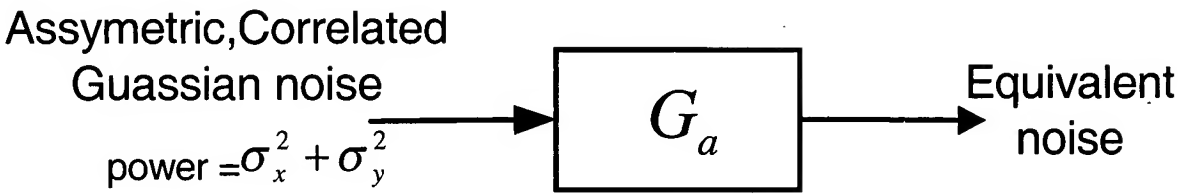
Assymetric,Correlated
Guassian noise
power $=\sigma_x^2+\sigma_y^2$
G_a
Equivalent
noise

Figure 3

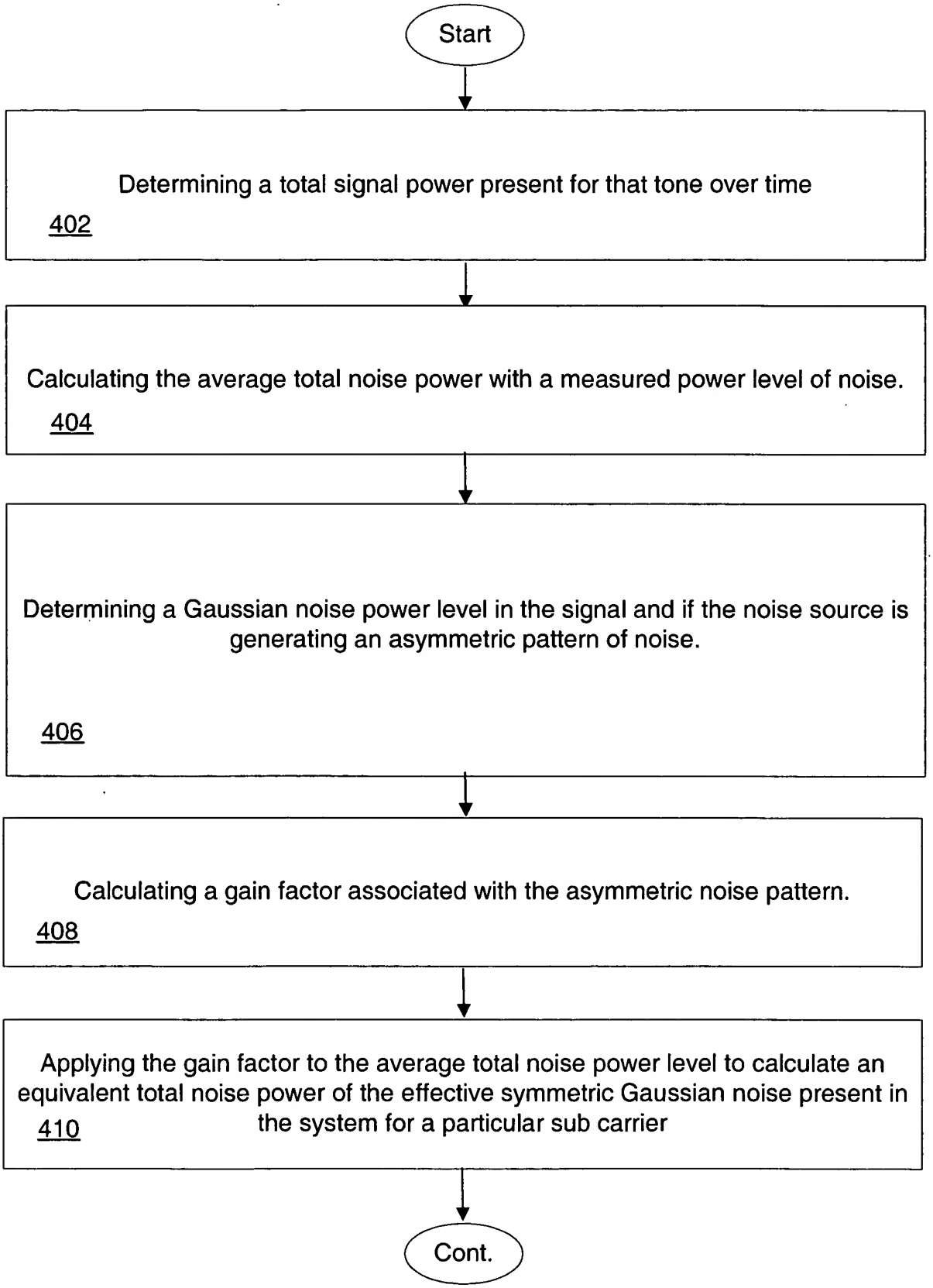
Start
Determining a total signal power present for that tone over time
402
Calculating the average total noise power with a measured power level of noise.
404
Determining a Gaussian noise power level in the signal and if the noise source is generating an asymmetric pattern of noise.
406
Calculating a gain factor associated with the asymmetric noise pattern.
408
Applying the gain factor to the average total noise power level to calculate an equivalent total noise power of the effective symmetric Gaussian noise present in the system for a particular sub carrier
410
Cont.

Figure 4a

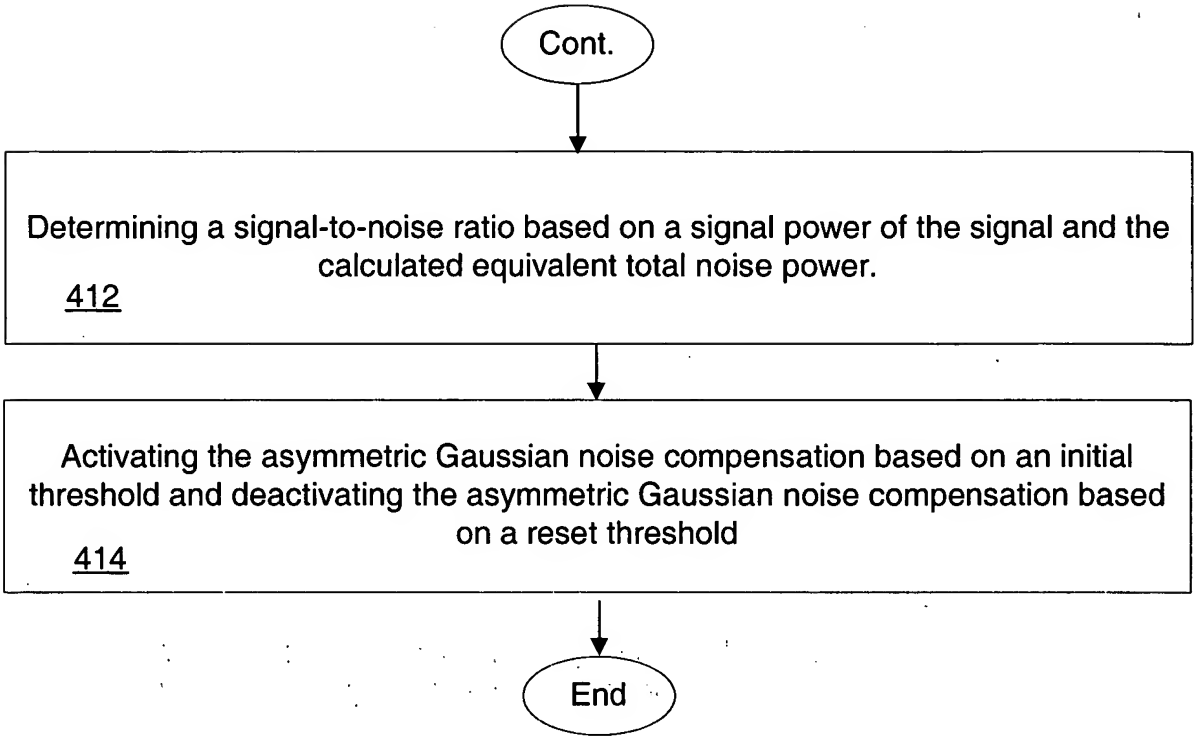
Cont.
Determining a signal-to-noise ratio based on a signal power of the signal and the calculated equivalent total noise power.
412
Activating the asymmetric Gaussian noise compensation based on an initial threshold and deactivating the asymmetric Gaussian noise compensation based on a reset threshold
414
End

Figure 4b